

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A three-dimensional display method for displaying two-dimensional images, by changing brightness, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, the method comprising:

generating first two-dimensional images that are obtained by projecting a background plane onto the plurality of display planes along a line of sight of the observer, and displaying the first two-dimensional images on the display planes respectively wherein brightness of each of the first two-dimensional images is determined independently for each display plane according to a depth position of a display object in a three-dimensional space, ~~wherein if~~ if brightness of the display object is darker than that of the background plane; and

generating second two-dimensional images that are obtained by projecting the display object onto the plurality of display planes along the line of sight of the observer, and displaying the second two-dimensional images on the display planes respectively in which brightness of each of the second two-dimensional images is set to be the same among the display planes irrespective of the depth position of the display object if the brightness of the display object is darker than that of the background plane ~~so that the display object is viewed as if it is displayed on the background plane at the depth position.~~

Claim 2 (Original): The three-dimensional display method as claimed in claim 1, wherein the brightness of each of the second two-dimensional images displayed on each display plane is 0.

Claim 3 (Original): The three-dimensional display method as claimed in claim 1, wherein each of the second two-dimensional images is a two-dimensional image in which the displayed brightness is controlled by pixel values having predetermined levels of gray, and each pixel value of each of the second two-dimensional images displayed on each display plane is 0.

Claim 4 (Currently Amended): A three-dimensional display method for displaying two-dimensional images, by changing transparency, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, the method comprising:

generating first two-dimensional images that are obtained by projecting the background plane onto the plurality of display planes along a line of sight of the observer, and displaying the first two-dimensional images on the display planes respectively wherein transparency of each of the first two-dimensional images is determined independently for each display plane according to a depth position of a display object in a three-dimensional space, ~~wherein~~ if brightness of the display object is brighter than that of the background plane; and

generating second two-dimensional images that are obtained by projecting the display object onto the plurality of display planes along the line of sight of the observer, and displaying the second two-dimensional images on the display planes respectively in which transparency of each of the second two-dimensional images is set to be the same among the display planes irrespective of the depth position of the display object if the brightness of the display object is brighter than that of the background plane ~~so that the display object is viewed as if it is displayed on the background plane at the depth position.~~

Claim 5 (Original): The three-dimensional display method as claimed in claim 4, wherein the transparency of each of the second two-dimensional images displayed on each display plane is the maximum value.

Claim 6 (Original): The three-dimensional display method as claimed in claim 4, wherein each of the second two-dimensional images is a two-dimensional image in which the transparency on the display plane is controlled by pixel values having predetermined levels of gray, and each pixel value of each of the second two-dimensional images displayed on each display plane is a value representing the maximum transparency.

Claim 7 (Original): The three-dimensional display method as claimed in any one of claims 1-6, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

a background plane of lines after a line including a cursor indicating an inputting or editing position of the character information is displayed at a depth position different from a depth position at which a background plane of the line including the cursor and lines before the line including the cursor is displayed.

Claim 8 (Original): The three-dimensional display method as claimed in any one of claims 1-6, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

a background plane of a line including a cursor indicating an inputting or editing position of the character information and lines after the line including the cursor is displayed at a depth position different from a depth position at which a background plane of lines before the line including the cursor is displayed.

Claim 9 (Canceled).

Claim 10 (Original): The three-dimensional display method as claimed in any one of claims 1-6, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

a background plane of a selected character information part is displayed at a depth position different from a depth position at which a background plane of other character information is displayed.

Claim 11 (Original): The three-dimensional display method as claimed in any one of claims 1-6, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

a background plane of a character information part that is searched by a search function is displayed at a depth position different from a depth position at which a background plane of other character information is displayed.

Claim 12 (Original): The three-dimensional display method as claimed in any one of claims 1-6, wherein,

the display object is character information;

the background plane is a background of a table or a menu in which character information are arranged and from which a piece of character information can be selected; and

a background plane of a selected character information part is displayed at a depth position different from a depth position at which a background plane of other character information is displayed.

Claim 13 (Currently Amended): A three-dimensional display apparatus for displaying two-dimensional images, by changing brightness, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, the apparatus comprising:

first means for generating first two-dimensional images that are obtained by projecting a background plane onto the plurality of display planes along a line of sight of the observer;

second means for displaying the first two-dimensional images generated by the first means on the display planes respectively wherein brightness of each of the first two-dimensional images is determined independently for each display plane according to a depth position of a display object in a three-dimensional space, ~~wherein~~ if brightness of the display object is darker than that of the background plane so as to display the background plane at an arbitrary position in the three dimensional space;

third means for generating second two-dimensional images that are obtained by projecting the display object onto the plurality of display planes along the line of sight of the observer; and

fourth means for displaying the second two-dimensional images generated by the third means on the display planes respectively in which brightness of each of the second two-dimensional images is set to be the same among the display planes irrespective of the depth position of the display object if the brightness of the display object is darker than that of the background plane ~~so that the display object is viewed as if it is displayed on the background plane at the depth position.~~

Claim 14 (Original): The three-dimensional display apparatus as claimed in claim 13, wherein the brightness of each of the second two-dimensional images displayed on each display plane is 0.

Claim 15 (Original): The three-dimensional display apparatus as claimed in claim 13, wherein each of the second two-dimensional images is a two-dimensional image in which the displayed brightness is controlled by pixel values having predetermined levels of gray, and each pixel value of each of the second two-dimensional images displayed on each display plane is 0.

Claim 16 (Currently Amended): A three-dimensional display apparatus for displaying two-dimensional images on a plurality of transmissive display apparatuses placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, the apparatus comprising:

first means for generating first two-dimensional images that are obtained by projecting the background plane onto a plurality of display planes of the transmissive display apparatuses along a line of sight of the observer;

second means for displaying the first two-dimensional images on the transmissive display apparatuses respectively wherein transparency of each of the first two-dimensional images is determined independently for each transmissive display apparatus to display the background plane at an arbitrary position in the three-dimensional space according to a depth position of a display object in a three-dimensional space, ~~wherein~~ if brightness of the display object is brighter than that of the background plane; and

third means for generating second two-dimensional images that are obtained by projecting the display object onto the plurality of display planes of the transmissive display apparatuses along the line of sight of the observer; and

fourth means for displaying the second two-dimensional images generated by the third means on the transmissive display apparatuses respectively in which transparency of each of the second two-dimensional images is set to be the same among the transmissive display apparatuses irrespective of the depth position of the display object if the brightness of the display object is darker than that of the background plane ~~so that the display object is viewed as if it is displayed on the background plane at the depth position.~~

Claim 17 (Original): The three-dimensional display apparatus as claimed in claim 16, wherein the transparency of each of the second two-dimensional images displayed on each transmissive display apparatus is the maximum value.

Claim 18 (Original): The three-dimensional display apparatus as claimed in claim 16, wherein each of the second two-dimensional images is a two-dimensional image in which the

transparency on the transmissive display apparatus is controlled by pixel values having predetermined levels of gray, and each pixel value of each of the second two-dimensional images displayed on each transmissive display apparatus is a value representing the maximum transparency.

Claim 19 (Original): The three-dimensional display apparatus as claimed in any one of claims 13-18, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

the second means displays a background plane of lines after a line including a cursor indicating an inputting or editing position of the character information at a depth position different from a depth position at which a background plane of the line including the cursor and lines before the line including the cursor is displayed.

Claim 20 (Original): The three-dimensional display apparatus as claimed in any one of claims 13-16, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

the second means displays a background plane of a line including a cursor indicating an inputting or editing position of the character information and lines after the line including the cursor at a depth position different from a depth position at which a background plane of lines before the line including the cursor is displayed.

Claim 21 (Canceled).

Claim 22 (Original): The three-dimensional display apparatus as claimed in any one of claims 13-18, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

the second means displays a background plane of a selected character information part at a depth position different from a depth position at which a background plane of other character information is displayed.

Claim 23 (Original): The three-dimensional display apparatus as claimed in any one of claims 13-18, wherein,

the display object is character information;

the background plane is a background of a screen on which the character information is input or edited; and

the second means displays a background plane of a character information part that is searched by a search function at a depth position different from a depth position at which a background plane of other character information is displayed.

Claim 24 (Original): The three-dimensional display apparatus as claimed in any one of claims 13-18, wherein,

the display object is character information;

the background plane is a background of a table or a menu in which character information are arranged and from which a piece of character information can be selected;  
and

the second means displays a background plane of a selected character information part at a depth position different from a depth position at which a background plane of other character information is displayed.

Claims 25-36 (Canceled).

Claim 37 (Original): A two-dimensional image generation method executed by a two-dimensional image output apparatus for displaying two-dimensional images, by changing brightness, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

a two-dimensional image calculation step of calculating two-dimensional images, each corresponding to a display plane, of a display object and a background from image information of the display object and the background;

a brightness value determination step of determining whether a brightness value of the display object is equal to or less than a predetermined threshold and the brightness value of the display object is less than a brightness value of the background; and

a brightness value calculation step of, when it is determined that the brightness value of the display object is equal to or less than the predetermined threshold and the brightness value of the display object is less than the brightness value of the background, calculating the brightness value of each two-dimensional image of the background according to depth information of the display object and setting brightness values of the two-dimensional images of the display object to be the same.

Claim 38 (Original): A two-dimensional image generation method executed by a two-dimensional image output apparatus for displaying two-dimensional images, by changing brightness, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

a two-dimensional image calculation step of calculating two-dimensional images, each corresponding to a display plane, of a display object and a background from image information of the display object and the background;

a brightness value determination step of determining whether a brightness value of the display object is equal to or less than a predetermined threshold; and

a brightness value calculation step of, when the brightness value of the display object is equal to or less than the predetermined threshold, changing the brightness value of the background to a value greater than the brightness value of the display object, and calculating the brightness value of each two-dimensional image of the background based on the changed brightness value according to depth information of the display object and setting brightness values of the two-dimensional images of the display object to be the same.

Claim 39 (Original): A two-dimensional image generation method executed by a two-dimensional image output apparatus for displaying two-dimensional images, by changing transparency, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

a two-dimensional image calculation step of calculating two-dimensional images, each corresponding a display plane, of a display object and a background from image information of the display object and the background;

a brightness value determination step of determining whether a brightness value of the display object is equal to or greater than a predetermined threshold and the brightness value of the display object is greater than a brightness value of the background; and

a transparency value calculation step of, when it is determined that the brightness value of the display object is equal to or greater than the predetermined threshold and the brightness value of the display object is greater than the brightness value of the background, calculating a transparency value of each two-dimensional image of the background according to depth information of the display object and setting transparency values of the two-dimensional images of the display object to be the same.

Claim 40 (Original): A two-dimensional image generation method executed by a two-dimensional image output apparatus for displaying two-dimensional images, by changing transparency, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

a two-dimensional image calculation step of calculating two-dimensional images, each corresponding a display plane, of a display object and a background from image information of the display object and the background;

a brightness value determination step of determining whether a brightness value of the display object is equal to or greater than a predetermined threshold; and

a transparency value calculation step of, when the brightness value of the display object is equal to or greater than the predetermined threshold, changing the brightness value of the background to a value less than the brightness value of the display object, and calculating the transparency value of each two-dimensional image of the background based on the changed brightness value according to depth information of the display object and

setting transparency values of the two-dimensional images of the display object to be the same.

Claim 41 (Previously Presented): A two-dimensional image output apparatus for displaying two-dimensional images, by changing brightness, on a plurality of display planes placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

two-dimensional image calculation means for calculating two-dimensional images, each corresponding to a display plane, of a display object and a background from image information of the display object and the background;

brightness value determination means for comparing a brightness value of the display object with another brightness value; and

brightness value calculation means for calculating a brightness value of each two-dimensional image of the display object and the background based on the two-dimensional images calculated by the two-dimensional image calculation means and depth information of the display object and the background;

wherein, when it is determined that the brightness value of the display object is equal to or less than a predetermined threshold and the brightness value of the display object is less than the brightness value of the background by the brightness determination means, the brightness value calculation means calculates the brightness value of each two-dimensional image of the background according to depth information of the display object and sets brightness values of the two-dimensional images of the display object to be the same.

Claim 42 (Previously Presented): A two-dimensional image output apparatus for displaying two-dimensional images, by changing brightness, on a plurality of display planes

placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

two-dimensional image calculation means for calculating two-dimensional images, each corresponding to a display plane, of a display object and a background from image information of the display object and the background;

brightness value determination means for comparing a brightness value of the display object with another brightness value; and

brightness value calculation means for calculating a brightness value of each two-dimensional image of the display object and the background based on the two-dimensional images calculated by the two-dimensional image calculation means and depth information of the display object and the background;

wherein, when it is determined that the brightness value of the display object is equal to or less than a predetermined threshold by the brightness determination means, the brightness value calculation means changes the brightness value of the background to a value greater than the brightness value of the display object, and calculates the brightness value of each two-dimensional image of the background based on the changed brightness value according to depth information of the display object and sets brightness values of the two-dimensional images of the display object to be the same.

Claim 43 (Previously Presented): A two-dimensional image output apparatus for displaying two-dimensional images, by changing transparency, on a plurality of transmissive display apparatuses placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

two-dimensional image calculation means for calculating two-dimensional images, each corresponding to a transmissive display apparatus, of a display object and a background from image information of the display object and the background;

brightness value determination means for comparing a brightness value of the display object with another brightness value; and

transparency value calculation means for calculating a brightness value of each two-dimensional image of the display object and the background based on the two-dimensional images calculated by the two-dimensional image calculation means and depth information of the display object and the background;

wherein, when it is determined that the brightness value of the display object is equal to or greater than a predetermined threshold and the brightness value of the display object is greater than the brightness value of the background by the brightness determination means, the transparency value calculation means calculates a transparency value of each two-dimensional image of the background according to depth information of the display object and sets transparency values of the two-dimensional images of the display object to be the same.

Claim 44 (Previously Presented): A two-dimensional image output apparatus for displaying two-dimensional images, by changing transparency, on a plurality of transmissive display apparatuses placed at different depth positions as seen from an observer to display a three-dimensional stereoscopic image, comprising:

two-dimensional image calculation means for calculating two-dimensional images, each corresponding to a transmissive display apparatus, of a display object and a background from image information of the display object and the background;

brightness value determination means for comparing a brightness value of the display object with another brightness value; and

transparency value calculation means for calculating a brightness value of each two-dimensional image of the display object and the background based on the two-dimensional images calculated by the two-dimensional image calculation means and depth information of the display object and the background;

wherein, when it is determined that the brightness value of the display object is equal to or greater than a predetermined threshold by the brightness determination means, the transparency value calculation means changes the brightness value of the background to a value less than the brightness value of the display object, and calculates the transparency value of each two-dimensional image of the background based on the changed brightness value according to depth information of the display object and sets transparency values of the two-dimensional images of the display object to be the same.

Claims 45-48 (Canceled).